oint Rapid Airfield Constructio (JRAC)

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2004 Demonstration Project
Ft. Bragg, North Carolina

Program Objective

The Joint Rapid Airfield Construction program will develop materials and techniques for rapidly upgrading existing or constructing new contingency airfields in-theater with a low logistical footprint. From the airfield site assessment, site selection, construction, soil stabilization, and even through the repair and maintenance stages, …

JRAC will transform the U.S. military's approach to rapid contingency

Go Anywhere!

Really Quickly!

The Pattern is Full!

Army Unit of Action (UA)

10,910 Short Tons (ST)

C-17 = 45 ST / aircraft

243 C-17 Sorties

C-17 Ground Time = 2 hrs.

7 day Closure

(assuming 24/7 Ops, 1400 NM and MOG = 3)

Joint Rapid Airfield Construction

A Future Joint Force Requirement

Office of the Secretary of Defense Strategic Planning Guidance Document :

"Components will develop programs for RDT&E consistent with the approved recommendations from the DPG-04-directed Advanced Mobility Concepts Study. At a minimum, these programs will address the Shallow Draft High-Speed Vessel, …, and Joint Rapid Airfield Construction."

January 2004

ERDC Engineer Research and Development Center

Rumsfeld's New Speed Goals

"The New Deployment Paradigm"

"How much of the nation's combat capability do we want to be able to deliver anywhere in the world, and in what time?"

Marines Corps

Gen. Peter Pace, Vice Chair Joint Chiefs of Staff

"Deploy to a distant theater in 10 days, defeat an enemy within 30 days, and be ready for an additional fight within another 30 days."

U.S. Defense Secretary Donald Rumsfeld

"And the Army realizes that its forces must be lighter and quicker to achieve these objectives."

Defense News April 12, 2004

int Rapid Airfield Construction (JRA

Purpose:

Provide the Future Force (FF) with the capability to create contingency airfield maximum-on-ground (MOG) capacity to meet rapid force deployment objectives

Products:

- ***Criteria for site assessment and selection, design, and construction of contingency airfields***
- ***Site assessment and QC tool kit, specifications for construction equipment accessories, soil stabilizer equipment, NSNs for soil stabilizers and matting systems***
- ***JRAC integrated software system***

Payoff:

- ***Increases theater MOG in days with minimal logistics***
- ***Increases in-theater airfield options***
- ***Allows FF to meet early entry deployment***

WHAT IS THE SCHEDULE AND COST?

Tasks	02	03	04	05	06	07
• Integrate construction technologies	4 ▲ 6					
• Demonstrate improved construction		5	6			
• Demonstrate C-130 capable technology		4	6		into OEF	
• Integrate performance models & terrain data		4		6		
• Evaluate all-weather stabilization		4 ▲		6		
• Demonstrate final site selection tools				5	6	
• Demonstrate stabilization for C-17 traffic			5			6

6 = TRL 6
▲ = Transition

TOTAL $23M

Funding ($M)	02	03	04	05	06	07
DT08	0	2.7	3.3	3.9	4.0	2.0
AT40	0.8	0.9	1.1	1.0	0.9	0.8
AT40	0.4	0.4	0.4	0.4	0	0

FY04 Major Activities

- ☑ Rapid Repair Material Evaluations
- ☑ Rapid Assessment Vehicle – Engineer (RAVEN)
- ☑ Purchase of Soil Stabilizer/Reclaimer Machine
- ☑ Laboratory Evaluations of Dust Control Technologies
- ☑ Polymer and Fiber Stabilized Soil Test Sections
- ☑ Stabilization of Thawing Soils Test Section

The RAVEN

CMI RS-325 Soil Stabilizer

2004 JRAC DEMONSTRATION
Ft. Bragg, NC – Sicily ALZ

JRAC Demonstration History

- ERDC Proposal to Ft. Bragg (Oct 03)
- ERDC/Ft. Bragg MOA (Nov 03)
- ERDC & 412 ENCOM Initial Site Assessment (Dec 03)
- ERDC produces Demo design (Feb 04)
- Demo Planning Meeting at Ft. Bragg (May 04)
- Demo training at All-American DZ (June 04)

PARKING APRON NO. 1 Mats & Polymer/Cement
PARKING APRON NO. 2 Fiber/Cement
3,500 FT EXISTING AIRSTRIP
SICILY ALZ
EXISTING TAXIWAY

JRAC Demonstration Components

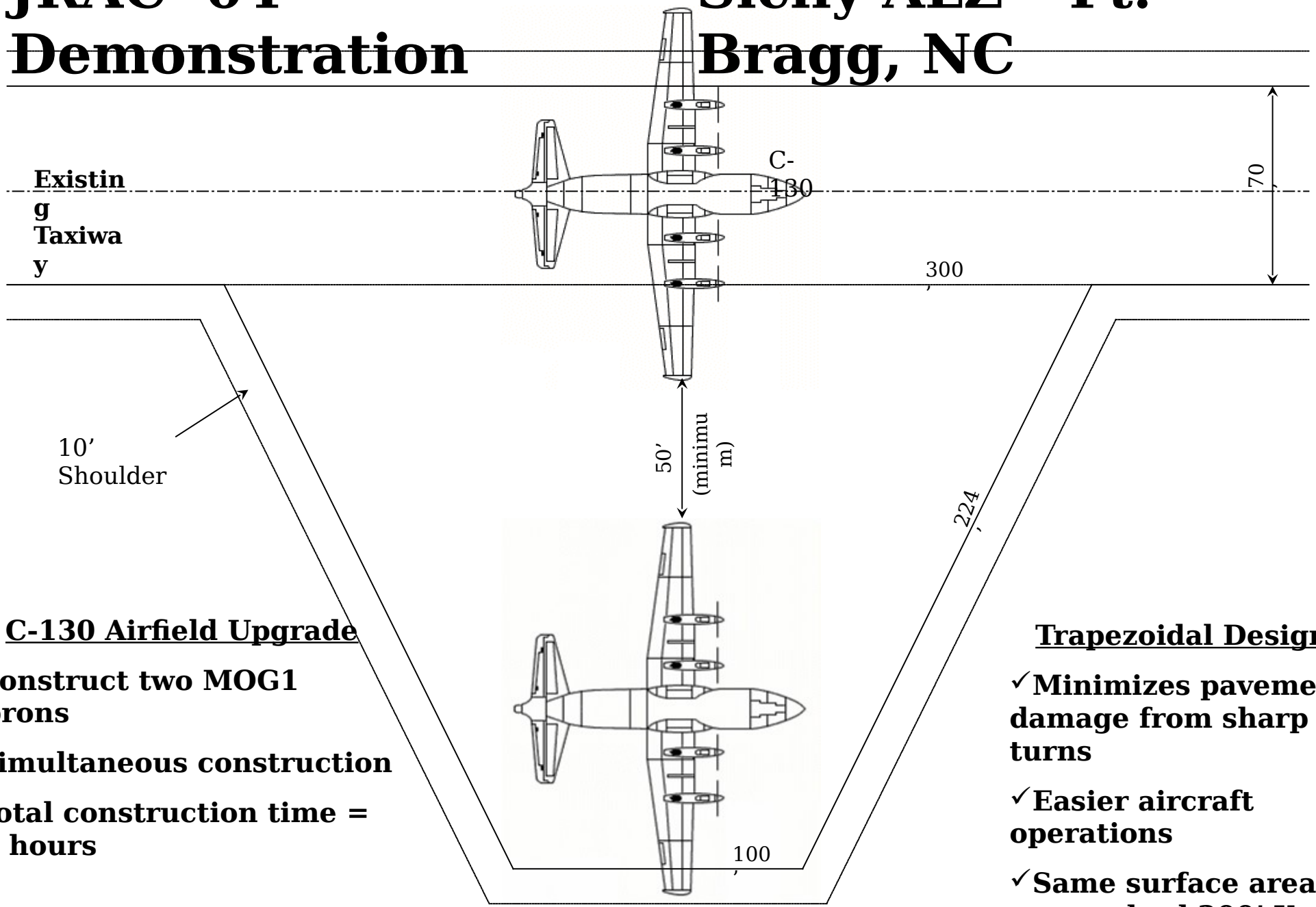
- Site Assessment and Design (Mon.. early AM)
- Clear and Grub (Mon. AM)
- Earthmoving/Cut & Fill (Mon. PM - Tues. AM)
- Mat installation Apron 1 (Tues. early AM)
- Polymer/Cement stabilization Apron 1 (Tues. PM)
- Fiber/Cement Stabilization Apron 2 (Wed. AM)
- Polymer surface can Aprons 1 & 2 (Wed. AM

JRAC Value Added

- Provide additional MOG2 to Sicily ALZ
- Provide valuable training to Ft. Bragg & 412 ENCOM
- Validate JRAC technologies under military scenario
- Positions JRAC 2007 Demo and final products for success

JRAC ’04 Demonstration

Sicily ALZ – Ft. Bragg, NC



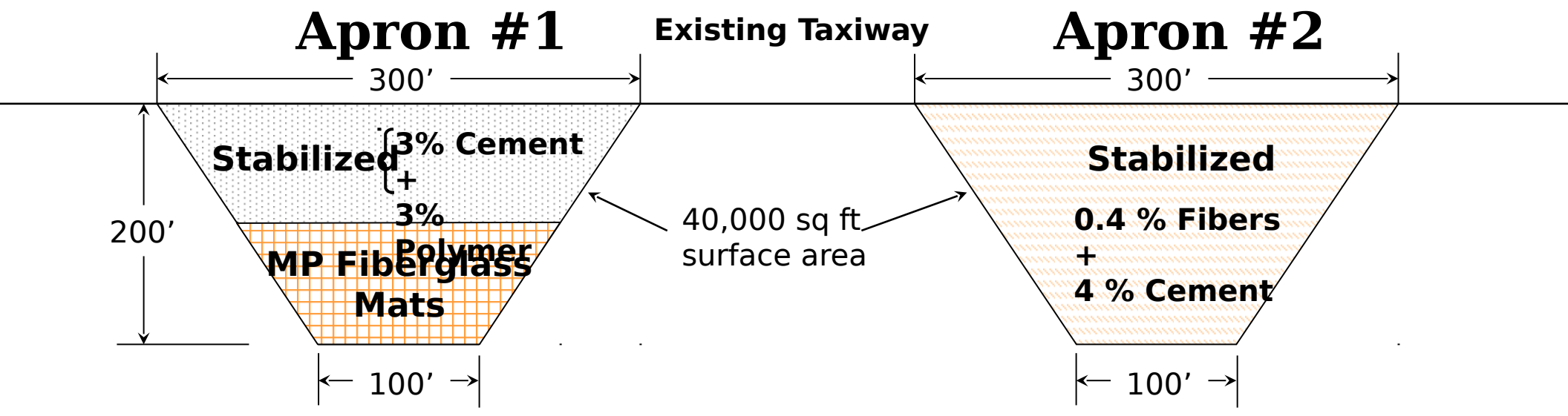
C-130 Airfield Upgrade

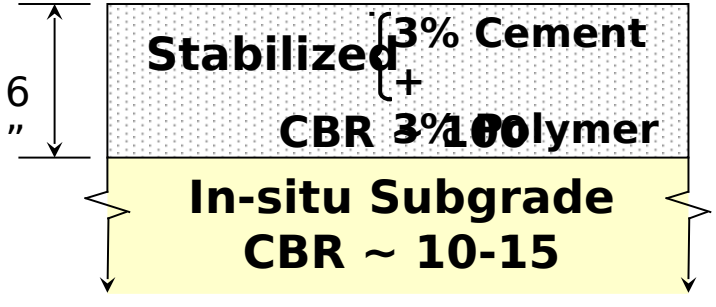
- **Construct two MOG1 Aprons**
- **Simultaneous construction**
- **Total construction time = 48 hours**

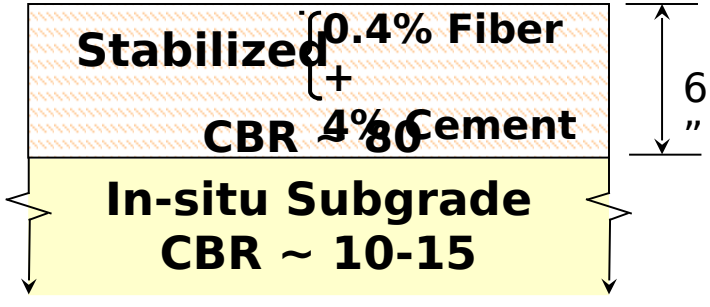
Trapezoidal Design

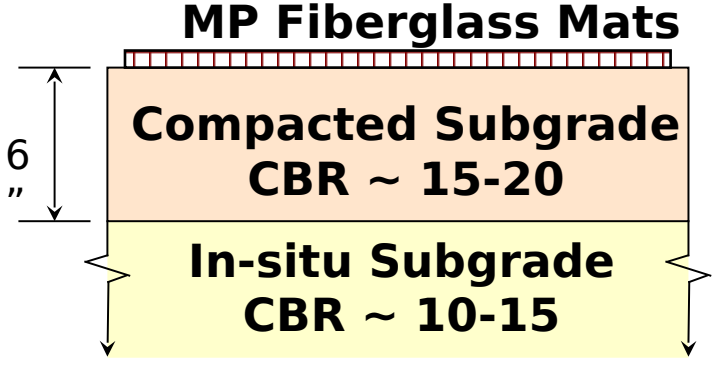
- ✓**Minimizes pavement damage from sharp turns**
- ✓**Easier aircraft operations**
- ✓**Same surface area as standard 200’ X 200’**
- ✓**Meets 50’**

JRAC Demo Apron Geometries and Cross-Sections









APRON #1	APRON #2
400 sacks Cement 3900 gal. Polymer 580 MP Mats	9700 lbs. Fibers 1000 sacks Cement

Joint Rapid Airfield Construction

JRAC Website

- **https://jrac.erdc.usace.army.mil**
- Accessible by all .mil domains
- Latest Information on Testing, Equipment, Construction Procedures
- JRAC Information on ’04 Demo Project, Meetings, Progress, etc…
- Current JRAC issues addressed through Tele-Engineering Operations Center (TEOC) – (601)634-2735 (Comm) or 446-2735 (DSN) unsecured
  NIPR: TEOC@usace.army.mil
  SIPR: TEOC@TeleEngineering.army.smil.mil

Joint Rapid Airfield Construction

Supports Force Projection Contingency Airfield Needs. . .

. . . Today

. . . Tomorrow

. . . and Beyond